

REMARKS

Claim 1 has been amended to incorporate the features of claims 28, 35, and 37. Claims 27, 28, 35, and 37 are canceled. Claims 29, 36 and 38 have been amended to depend from claim 26. No new matter has been introduced.

Consideration and entry of the amendments are respectfully requested.

Response to Objections

The Examiner objected to the Abstract because it is more than one paragraph. Applicant amends the Abstract to remedy the concerns raised by the Examiner. Reconsideration and withdrawal of the rejection are respectfully requested.

Response to Rejection under 35 U.S.C. § 102

Claims 26-51 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Application Publication 2004/0149999 A1 to Uemura et al. ("Uemura").

Uemura was cited as disclosing a gallium nitride-based compound semiconductor light-emitting device including a negative electrode which comprises a bonding pad layer 21b and a contact metal layer 19n in contact with the n-type semiconductor layer 13, and in which the contact metal layer may be composed of a Cr-Al alloy. Uemura is particularly cited as teaching that an "n-side electrode" may be formed as a Cr-Al alloy, and that an "n-side electrode film," embodied as a laminate of layers 21a and 21b, may be formed on the n-side electrode.

Applicant submits that Uemura does not teach each and every feature of the device of amended claim 1. In particular, Uemura does not teach "wherein the negative electrode comprises a bonding pad layer, a contact metal layer which is in contact with the n-type semiconductor layer, and an Au-Sn alloy layer or a lead free solder layer which is provided on

the bonding pad layer, and wherein the contact metal layer is composed of a Cr-Al alloy which has a Cr content of 20 to 80 mass%.”

With respect to the features of canceled claims 35 and 37, the Examiner cited paragraphs [0027] and [0031] as disclosing the Au-Sn alloy layer or lead-free solder layers. However, paragraphs [0027] and [0063] of Uemura disclose that the n-side electrode is made of a metal or two or more metals selected from Al, V, Sn, Tr, Cr, Nb, Ta, Mo, W and Hf. There is no specific disclosure of an Au-Sn alloy layer and no specific disclosure of where the Au-Sn alloy layer or lead-free solder layer is arranged within the negative electrode. Accordingly, Uemura does not disclose the above-noted feature of amended claim 26 and does not anticipate the present claims.

With respect to the features of canceled claims 28, the Examiner cited paragraphs [0027] as disclosing a Cr-Al alloy with a Cr content *understood* to be of from 20 to 80 mass%. Although Uemura suggests that the n-side electrode may comprise a Cr-Al alloy, there is no disclosure as to the Cr content thereof. Therefore, the cited prior art does not teach this limitation of claim 22, and for this additional reason, Uemura does not anticipate the amended claims.

With respect to any underlying obviousness rejection, Applicant discloses, in Table 1 at page 15 of the specification, test data showing that a CrAl contact metal layer having a Cr content of 20 mass % or more maintains its Ohmic characteristics after heating (Samples 1 to 3), whereas a Cr contact metal layer exhibits Schottky characteristics after heating (Sample 4). That is, the test data of Table 1 demonstrates criticality in a Cr content of at least 20 mass % not taught or suggested by Uemura. Further in this regard, as discussed at page 16 of the specification, when the contact metal layer is formed from an alloy containing Cr and a metal other than Al (e.g., Cr-Ti alloy, or Cr-V alloy), the as-formed film exhibits Ohmic contact

characteristics. However, after the heating test has been performed, the film exhibits Schottky contact characteristics, and the resistance value is considerably impaired.

Reconsideration and withdrawal of the foregoing rejection under 35 U.S.C. § 102(b) is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Abraham J. Rosner
Registration No. 33,276

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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